P-131C

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CONFIDENTIAL 23 July 1956

MEMORANDUM FOR: THE RECORD

SUBJECT : Testing IR Equipment at [redacted] 25X1

1. Time and Place of Meeting: The testing was held 19-20 July 1956 at [redacted] 25X1

2. Attendance: [redacted] 25X1

3. Equipment Used:

2 Model B (IS-1) Infrared Communicators
2 Model C (IS-5) Prototype Infrared Communicators
2 Model E Prototype Infrared Transmitters
(only one optical head)

4. Discussion:

a. Daytime Test #1

The Model E was set up in a building (wooden dwelling) 120 yards (measured) from the monitoring point (a barn). The Model E was aligned with the Find tone of one of the Model B's. The other Model B was set up in the house for the purpose of communicating. One of the Model C's was also set up at each of the 2 points. Weather conditions were partly cloudy - mild - time 1400 hours start. Finish at 1700 hours. Results: Reception on the model C was far superior to that obtained on the model B due to high noise level in the Model B. Intelligence source for the model E was standard AM radio. Electrical disturbances from thunderstorms caused the radio to be discarded as an intelligance source and each of the 3 persons in attendance were stationed in the house to act as a source of intelligence. Approximately 25-30 feet off-mike operation was achieved. Low frequency noises were quite annoying. The microphone used was the MC-11-A. No other microphone was available.

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At approximately 1900 hours the two model C's were taken to a line of sight range of .55 miles (measured). Alignment and communications were established within 5 minutes. Signal quality was 5 x 5. A range of one mile was attempted with Model C at approximately 2000 hours. This attempt was unsuccessful probably due to a ground haze which had settled.

b. Nighttime Tests:

A return to the Model E installation showed that the signal quality was much improved (approximately 2100 hours). However, the signal quality through the model C was still superior to the Model B. A 60 cycle hum was now present which had been unnoticed before. Signal level from the model E was such as to indicate greater range could be accomplished. Testing ceased at 2300 hours.

c. Daytime Test #2:

At the request of the two ASD representatives, a range of one mile was attempted on the airship (Time 1200 hours). Convection currents were quite noticeable. Communications were established with difficulty between one C unit and one B unit. One B unit was found to be inoperative (dead battery). Reception between C units was good one way. Signal level was adequate one way, however, transmission to the other end could only be accomplished with the operative B unit.

Transmission on the Model E was then attempted unsuccessfully at one mile.

d. Range tests were then performed on the ST-1 transmitters being received by a [redacted] receiver. Range was measured at between .5 and .6 miles under good conditions. 25X1

5. Conclusions:

The Model C appears to have a range of approximately one mile, however, convection currents are capable of reducing this (as with Model B) by a factor of 2 or more.

The Model E appears to have an absolute range for 100% understanding of 120-130 yards for day and night use against either a model B or a Model C. The 60 cycle hum in the model E transmitter must be removed. Attention should also be given to attenuating the low frequency noises picked up by the microphone.

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Installation of a model E will of necessity be a tedious job that will require special training of the installation personnel.

25X1

Distribution:
1 - P-101B
1 - P-101C
1 - P-101D
1 - RTW
1 - Chrono

RTW/ls

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